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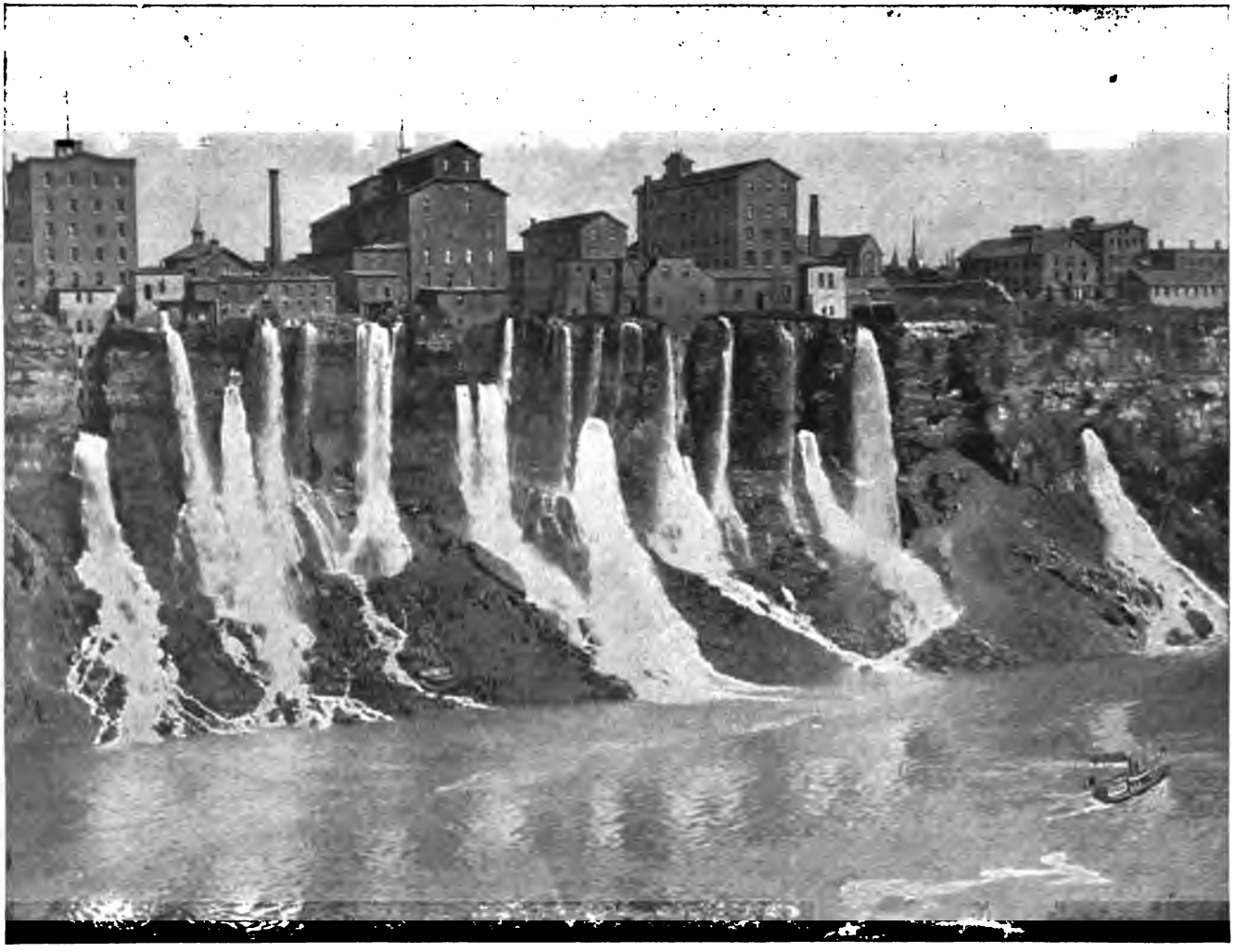

PRESENT MILLING DISTRICT, NIAGARA FALLS, N. Y.

THE WATER-POWER

OF THE

FALLS OF NIAGARA

APPLIED TO MANUFACTURING PURPOSES.

THE HYDRAULIC TUNNEL

OF

THE NIAGARA FALLS POWER COMPANY.

AN ACCURATE DESCRIPTION OF ONE OF THE GREATEST INDUSTRIAL UNDERTAKINGS OF THE AGE,

WITH

PLANS, MAPS AND ILLUSTRATIONS.

PUBLISHED BY THE

BUSINESS MEN'S ASSOCIATION

OF

NIAGARA FALLS, N. Y.

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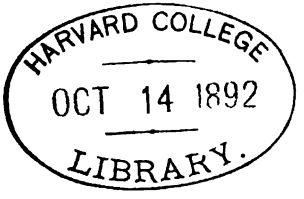

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INTRODUCTION.

THE Business Men's Association of Niagara Falls, New York, issues this volume to make more generally known the success of the Niagara Falls Power Company in bringing about the construction of the great Hydraulic Tunnel, the adaptation of the vast water-power of the Falls of Niagara to manufacturing purposes, and to bring to the notice of manufacturers, capitalists, and the public generally, the details of one of the most important, scientific, and manufacturing enterprises of the age. The investment of over three millions of dollars of outside capital at Niagara Falls also prompts a desire on the part of the citizens of the place to co-operate in bringing about the fullest development of this great undertaking.

The magnitude of the great cataract, and its fame as a natural wonder, have heretofore, to a certain degree, excluded from thought the idea of its marvelous utilitarian properties, but the recent development of electrical science and the far-reaching enterprise of to-day, have now combined to subject to the uses of mankind a portion of the power of the Falls, developed at such a distance from the great cataract as not to interfere in any way with the natural beauty of the scenery.

We believe that a careful perusal of these pages, and an examination of the accompanying plans, maps, and illustrations, devoted to a locality full of historic interest, famed for its features of natural grandeur, and destined to have an important bearing upon the manufacturing interests of the country, will richly repay the manufacturer, the capitalist and the workingman.

The Business Men's Association of Niagara Falls, N. Y., will welcome inquiry from every quarter, and will furnish all information that may be desired by correspondents. We invite personal investigation and examination here upon the ground, and will be always ready to accompany visitors coming to Niagara for that purpose. We also bespeak your assistance in making known the contents of these pages to others, who may be benefited by them.

Address all communications to

THE BUSINESS MEN'S ASSOCIATION,

NIAGARA FALLS, N. Y.

OFFICERS

OF

THE BUSINESS MEN'S ASSOCIATION

OF

NIAGARA FALLS, N. Y.

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DAVID PHILLIPS.

VICE-PRESIDENTS.

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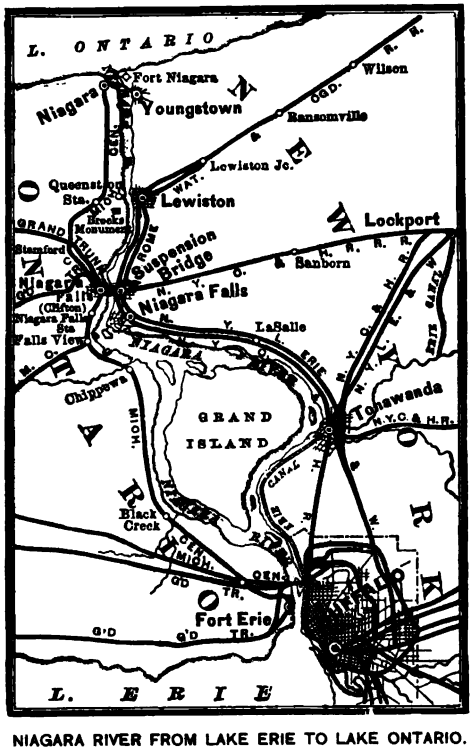
THE

WATER-POWER OF THE FALLS OF NIAGARA

APPLIED TO MANUFACTURING PURPOSES.

FOR many years it has been a matter of frequent comment, that at Niagara there existed an enormous water-power not utilized. Foreigners visiting the locality expressed their astonishment that a people so inventive and enterprising as the Americans should allow the unlimited power of Niagara to waste itself away without attempting to divert a fraction of the force flowing by their doors, to increase the material prosperity of their country.



NIAGARA RIVER FROM LAKE ERIE TO LAKE ONTARIO.

The feasibility of applying a portion of the power of the cataract to the comforts and necessities of mankind has been discussed for many years by the scientists and manufacturers of America, and several undertakings for the utilization of so much of the water-power as the immediate locality required, were carried out by local enterprise, but the limited demand for water-power in a comparatively new and undeveloped country, and the existence of many small water-powers in the New England States and other sections of the country, permitted this

great natural reservoir, of power, at Niagara to remain practically untouched until the removal of the forests impaired and in many instances destroyed the water-powers at other places.

THE OLD MILLS.

The early French explorers and traders, impressed by the magnitude of the water-power at Niagara, built a mill beside the rapids just above the Falls. In colonial times the British selected a site in the same neighborhood and erected a mill, used for preparing timbers for fortifications along the river. Immediately below were subsequently erected the Stedman and Porter mills, the first structures of the kind on the Western frontier. These were soon followed by the construction of two large raceways, which were used by manufacturing establishments, as was also Bath Island, situated in the rapids above the American Falls.

THE HYDRAULIC CANAL.

The water-power at Niagara was first utilized on a large scale by the construction of the Hydraulic Canal, about three-quarters of a mile in length, commencing at a point on the shore of the river above the Falls, where the water is deep and navigable, and terminating on the high bank of the gorge below the Falls. The cliff along the bank of the river near the lower termination of the canal is occupied by the large manufacturing establishments shown in the illustration of the Milling District (frontispiece).

The Cataract Mill, the first mill established on the Hydraulic Canal, was erected by Charles B. Gaskill in 1874. The capacity of the mill has been largely increased. It now turns out 700 barrels of flour per day. The Canal became the property of Jacob F. Schoellkopf to whose enterprise and foresight the development of Niagara Falls as a manufacturing center is largely due.

The erection of the flouring mill of Schoellkopf & Matthews was commenced in 1877. It started with twenty-two run of stone, and by reason of the power and shipping facilities, became so successful that it was necessary to increase the capacity. In 1881 it was remodelled, the stone replaced by rollers, and the product increased to 2,000 barrels per day.

When the Niagara Falls Hydraulic Power & Manufacturing Company became the owners of the Hydraulic Canal other manufacturing industries increased. The Niagara Wood Paper Company erected a mill for the manufacture of Wood Pulp. Owing to the abundant and steady power, the place proved to be particularly well adapted to that industry, and a second mill was soon after erected by John F. Quigley. A third mill, now the property of the Cataract Manufacturing Company, was subsequently established. All of the pulp mills have since erected additions fully as large as the first structures. The Niagara Wood Paper Company and the Cliff Paper Company have added machinery for the manufacture of paper.

When the mill of the Niagara Falls Paper Manufacturing Company was appropriated by the State of New York at the establishment of the State Reservation at Niagara, in the year 1885, the Pettebone Paper Company erected a larger and better mill, in the milling district. In 1889 an addition to the establishment was built and the capacity of the mill doubled.

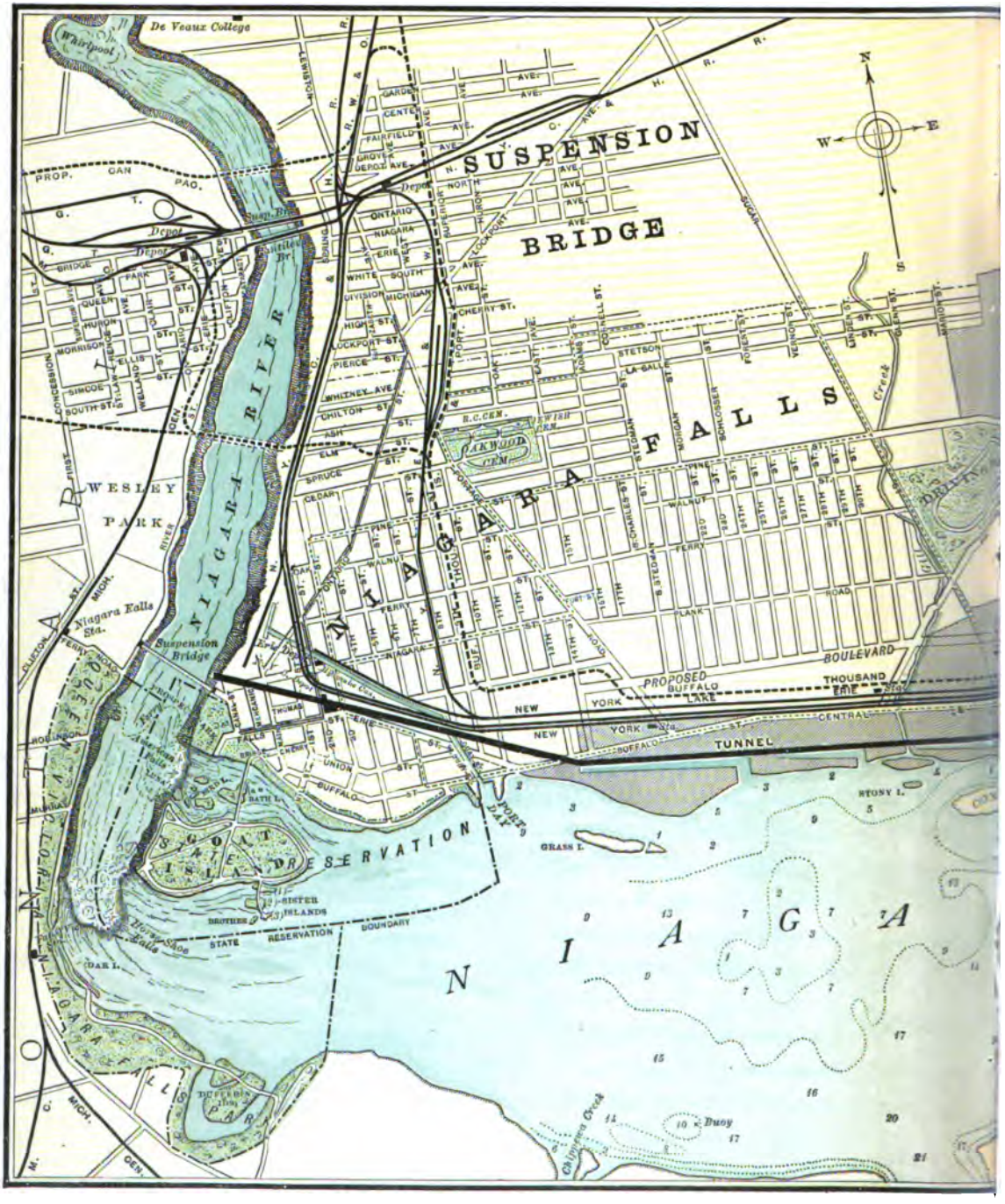
The Oneida Community, (limited), of Niagara Falls has established one of the largest silver plating works in the United States, and has also added an extensive steel chain manufactory to the establishment. The capacity of the works has been doubled since their establishment.

Carter & Company, (limited), manufacturers of counter check books, located at Niagara Falls when the goods were first introduced. The establishment has been enlarged several times, and a new building is now being erected, to meet the increased demand.

A third flouring mill, "The Central," has been established, with a capacity of 2,000 barrels per day. Schoellkopf & Matthews' Niagara Flouring Mill and The Central Flouring Mill, standing side by side at Niagara Falls, are the largest flouring mills east of Minneapolis, and are almost continually run to their full capacity.

The establishment of the flouring mills necessitated the building of large cooper shops. All the barrels used by the mills are manufactured in the mill district. This branch of industry gives employment to a large number of men.

The business of the Brush Electric Light & Power Company, organized in 1881, has continuously increased. It now furnishes light not only for Niagara

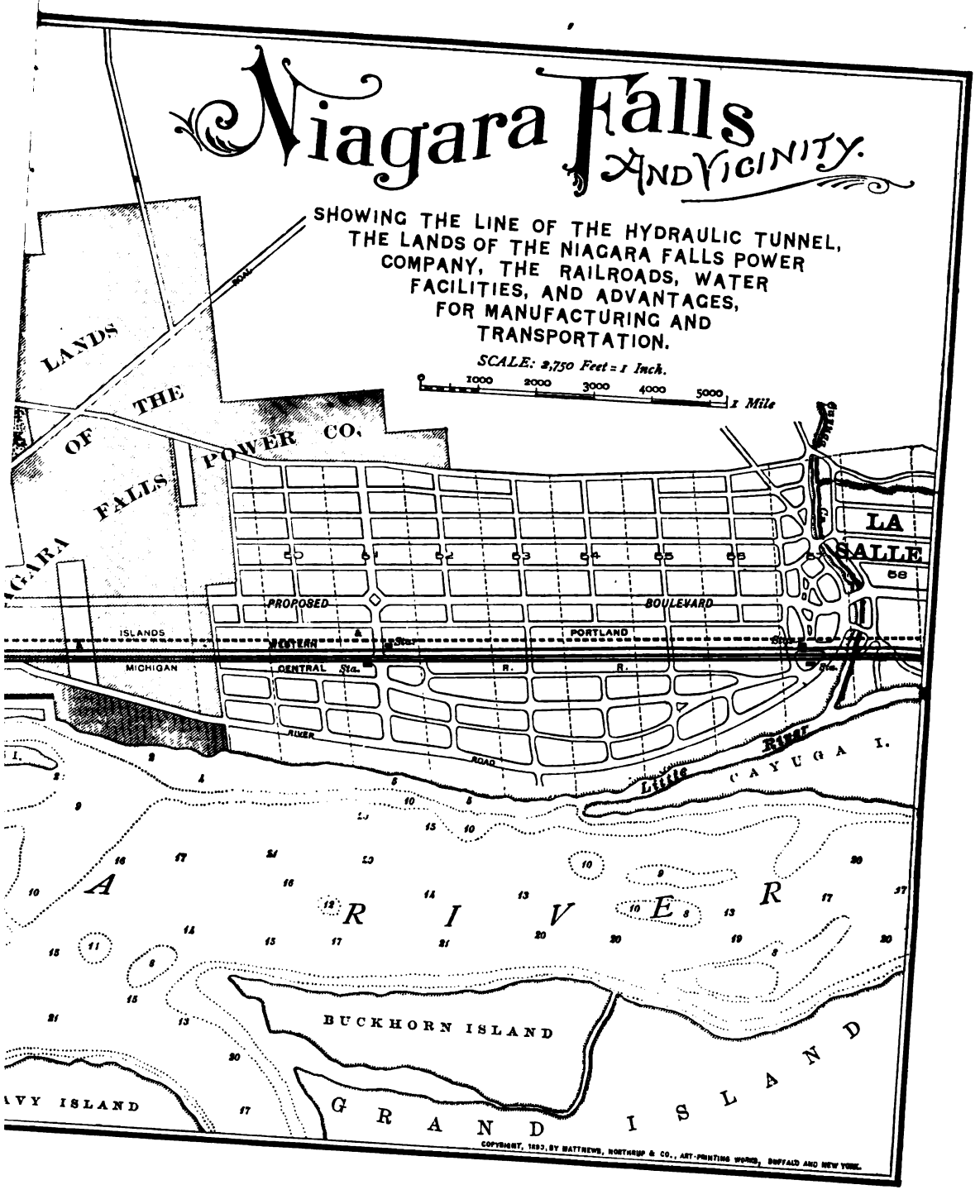

De Veaux College
Whirlpool
SUSPENSION
BRIDGE
NIAGARA FALLS
NIAGARA RIVER
WESLEY
PARK
Niagara Falls
Sta.
Suspension
Bridge
GOAT
ISLAND
RESERVATION
SISTER
ISLANDS
BROTHERS
STATE RESERVATION BOUNDARY
PORT DAY
GRASS I.
STONY I.
NIAGA
Buoy
Chippewa Creek
PROPOSED
BOULEVARD
THOUSAND
ERIE
NEW YORK
CENTRAL
TUNNEL
BUFFALO
LAKE
Depot
Susp. Br.
Cantilever Br.
R.C.CEM.
JEWISH CEM.
OAKWOOD CEM.
Creek
N
S
E
W

Niagara Falls And Vicinity.

SHOWING THE LINE OF THE HYDRAULIC TUNNEL, THE LANDS OF THE NIAGARA FALLS POWER COMPANY, THE RAILROADS, WATER FACILITIES, AND ADVANTAGES, FOR MANUFACTURING AND TRANSPORTATION.

SCALE: 3,750 Feet = 1 Inch.

1000 2000 3000 4000 5000 *1 Mile*



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Falls, but for Suspension Bridge two miles distant. The wires of this Company also cross the Niagara River to Canada and light Niagara Falls, Ontario, making a circuit of several miles along the shore of the river on each side.

The Niagara Falls Brewing Company's establishment is one of the most successful and prosperous concerns of the kind in the country. Since the erection of the buildings, additions have been made sufficient to double its capacity.

The building of so many mills led to the erection of Philpott & Leuppie's machine shop, an extensive establishment located in the heart of the mill district.

Every branch of business established during the past fifteen years has been obliged by increased demand to double its capacity.

A summary of the yearly transactions of some of the various branches of industry will illustrate the importance of Niagara Falls as a manufacturing center.

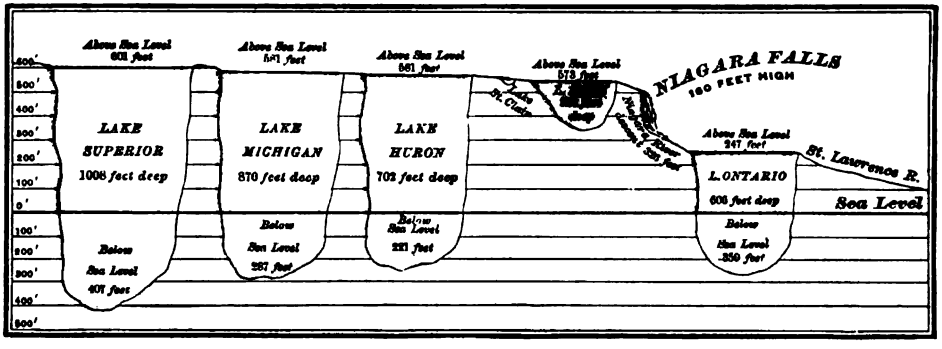
The flouring mills manufacture annually 942,000 barrels of flour, value, $4,710,000; employ 110 men and pay out for wages $66,000. The Paper and Pulp Mills turn out 9,156 tons, value, $527,520; employ 126 persons, and pay out for wages $64,680. The Cooper Shops employ 130 men, manufacture 603,600 barrels, value $211,260, and pay out for wages $64,800. The Oneida Community, limited, employ 220 persons and pay out for wages $60,000; value of product, $200,000. Carter & Company, limited, employ 161 persons, pay out in wages $49,400; value of product, $350,000. The Niagara Falls Brewing Company employ 40 men and pay out in wages $28,000; manufactures 40,000 barrels, value $280,000. Philpott & Leuppie employ 16 men, and pay $9,600 for wages.

These establishments are among the most prosperous in the country, a fact largely due to the great superiority of the power and the unexcelled shipping facilities at their command.

The railroad companies have been watchful of the rapid growth of the manufacturing interests, and railroad sidings have been laid to every mill door. Twenty-seven thousand cars of mill freight are now handled every year.

The chain of the great lakes, the inexhaustible source of the power, shown in the illustration at page 16, is unaffected by floods or droughts, the

THE RAPIDS ABOVE THE FALLS.



LEVEL OF THE CHAIN OF GREAT LAKES.

surface height of the Niagara River is practically the same at all times, and the lake water which constitutes the stream is of the purest quality. There is nothing to interrupt the steady flow of the products of these establishments, and being located as they are upon the great highway of commerce between the East and West, where the trunk lines of railway concentrate at the International Railway Bridges, connecting the United States and Canada, shown in the illustration of the International Bridges at pages 30 and 37, the means of obtaining the raw material, and the facilities for bringing the products of the manufacturing establishments to the consumer, are unexcelled.

THE DEMAND FOR ADDITIONAL RELIABLE WATER-POWER.

The present need of additional reliable water-power has led to the construction of the Hydraulic Tunnel of the Niagara Falls Power Company, and the almost unlimited adaptation of the greatest water-power in the world to manufacturing purposes.

Water-power in America is gradually diminishing as the country becomes more thickly settled. At many places in the Eastern States it has become necessary to supplement water-power with steam in order to run machinery during the twenty-four hours, thereby greatly increasing the cost of production. Much of the water-power in use in various sections of the country has been developed by the construction of dams for the storage of water during the dry season. These devices have at times proved inadequate to supply the water required, and at other times when freshets pre-

vailed the dams have given way, entirely depriving the manufacturers of power.

The cost of maintaining dams, the unreliability of the power, and the isolated location of many establishments on slender lines of railroad, where from lack of competition, rates are high, place such manufacturers at great disadvantage with establishments like those located at Niagara, having the benefit of steady power and abundant shipping facilities.

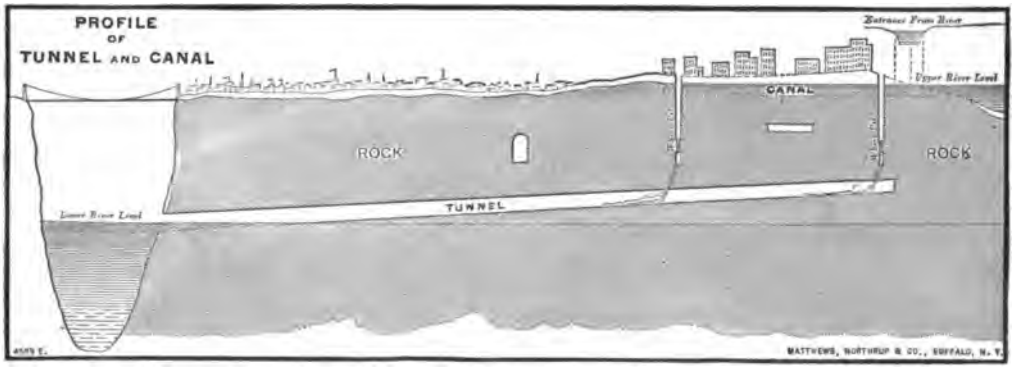
Niagara Falls, by means of the Hydraulic Canal, possessed advantages of power and shipping facilities greater than any other manufacturing center in the country, and as a consequence the manufacturing establishments increased rapidly until nearly every available horse-power was utilized and the demand for power, under circumstances offering so many advantages to the manufacturer, continued.

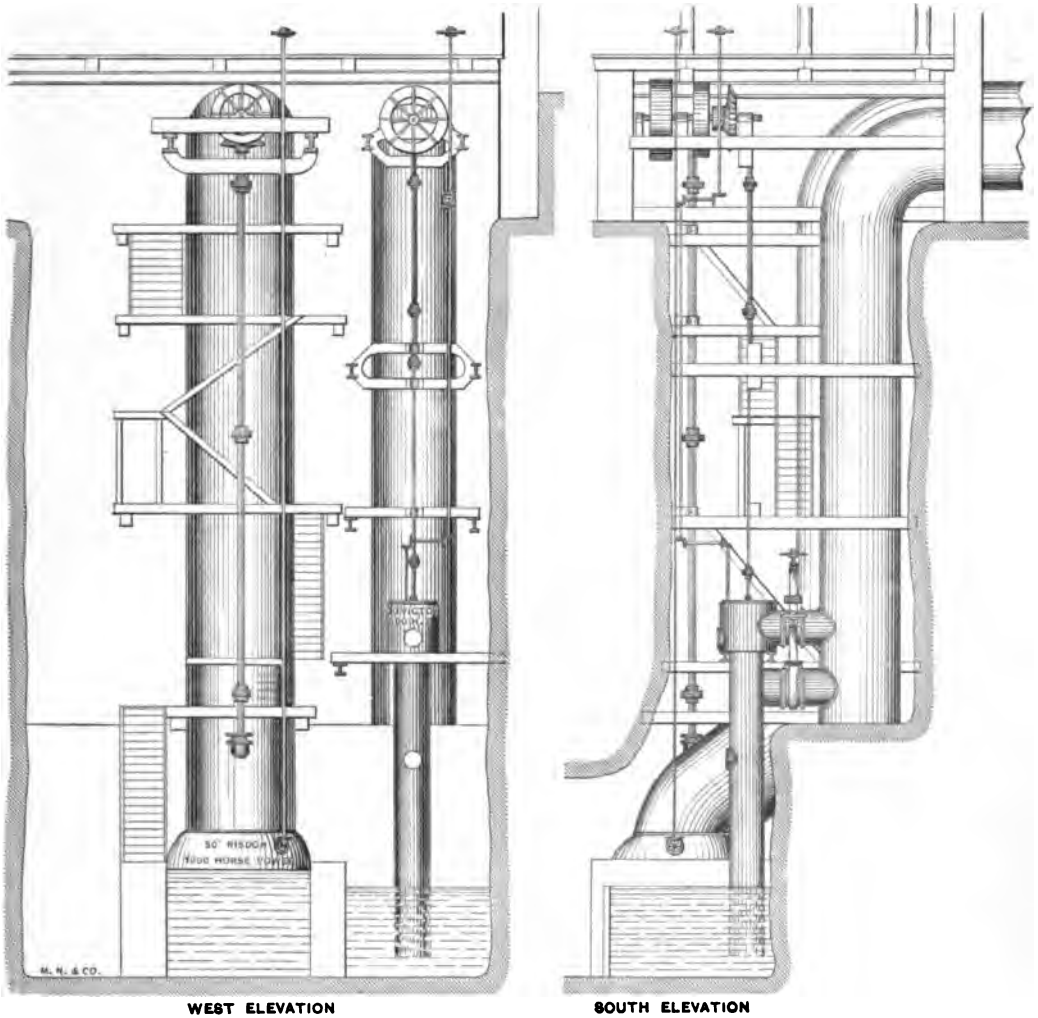
THE DEVELOPMENT OF ELECTRICAL SCIENCE.

The rapid development of electrical science also increased the demand for power, and convinced scientists and manufacturers that the time had come for a larger utilization of the enormous water-power of the Falls of Niagara than had hitherto been undertaken.

THE HYDRAULIC TUNNEL.

The idea of the Hydraulic Tunnel was conceived by the late Thomas Evershed, Division Engineer of the New York State Canals. It consists of a





WEST ELEVATION SOUTH ELEVATION

PLAN SHOWING ARRANGEMENT OF WHEELS
IN THE WHEEL-PIT OF THE
NIAGARA FALLS HYDRAULIC POWER AND MANUFACTURING CO.
NIAGARA FALLS, N. Y.

subterranean tunnel, or tail race, extending from the surface of the water below the Falls to a point on the Niagara River above the Falls. It is connected with the river by means of short surface canals, wheel pits, and cross tunnels, as shown in the illustrations at pages 17 and 20. The power produced by the capacity of the Tunnel is equal to the water-power of Lawrence, Lowell, Holyoke, Turner's Falls, Manchester, Bellow's Falls, Lewiston, Cohoes, Oswego, Patterson, Augusta, Ga., Minneapolis, Rochester and Lockport combined.

The method of using the power is the same as that in operation upon the Hydraulic Canal, shown in the illustration of one of the stand pipes on the canal basin at page 18. While the principle is the same, there is a difference in the manner of obtaining the water. At the Hydraulic Canal there is one long surface canal, a canal basin or reservoir, wheel pits and short tail races, to the adjacent high bank of the river. In the case of the Hydraulic Tunnel, the Niagara River itself is the basin, or reservoir, directly connected by short surface canals, wheel pits, and cross tunnels, with one great tunnel, or tail race, nearly two miles in length, which carries the water from the wheels to the Niagara River below the Falls as shown in the illustration at page 17.

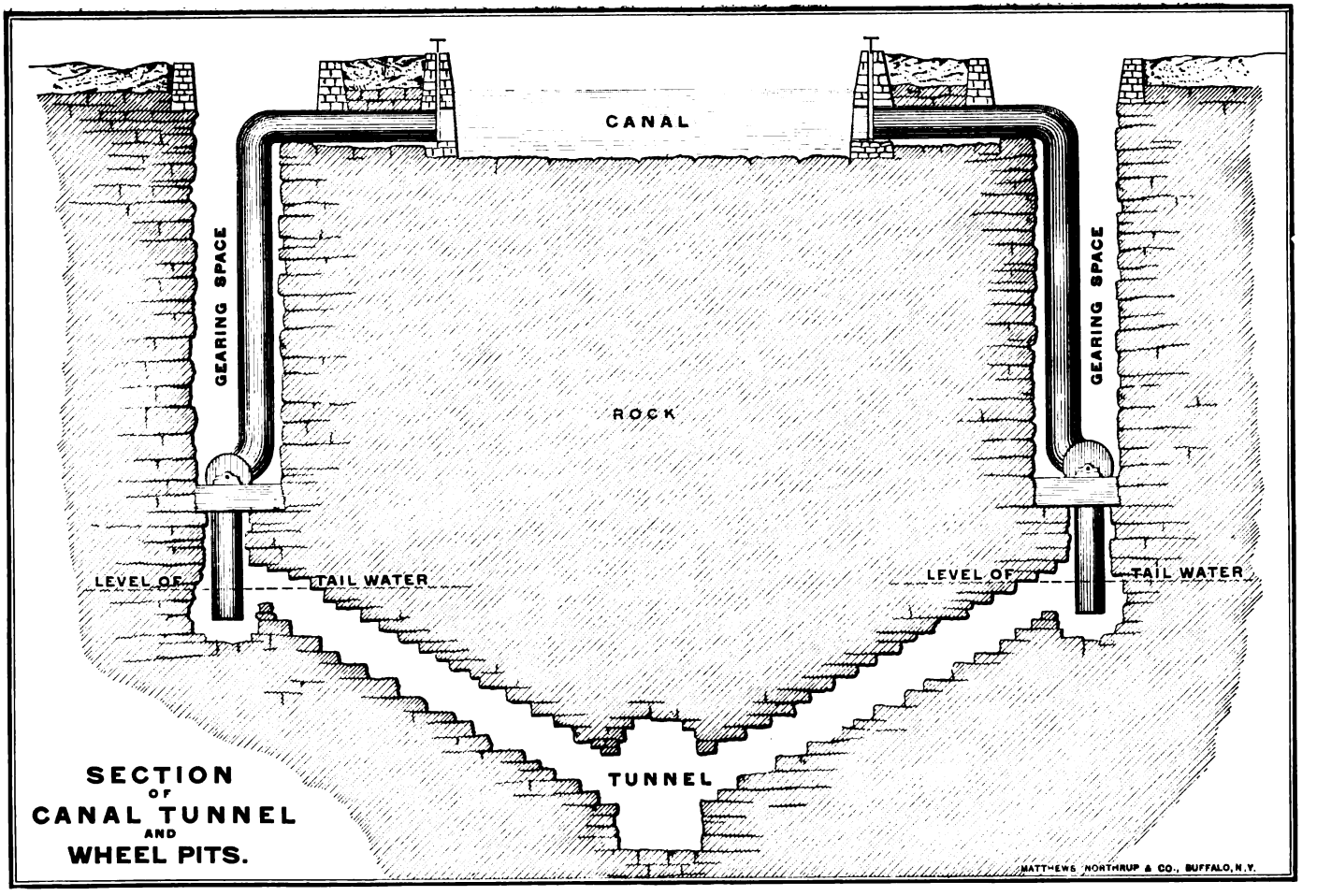
The great volume of the upper Niagara River, nearly three miles in width, and navigable in depth at the point of the water supply of the Hydraulic Tunnel, is shown in the illustration of the Niagara River from the tunnel lands, at pages 12 and 13.

THE NIAGARA FALLS POWER COMPANY.

The Niagara Falls Power Company was incorporated by a special act of the Legislature of the State of New York, March 31, 1886, for the purpose of constructing, maintaining and operating the Hydraulic Tunnel, and for furnishing power for manufacturing purposes.

MILL SITES.

The company has purchased lands extending two miles, along the shore of the Niagara River adjacent to the Hydraulic Tunnel, which have been laid


CANAL
GEARING SPACE
GEARING SPACE
ROCK
LEVEL OF TAIL WATER
LEVEL OF TAIL WATER
TUNNEL
SECTION
OF
CANAL TUNNEL
AND
WHEEL PITS.
MATTHEWS NORTHRUP & CO., BUFFALO, N.Y.

out for lots, streets, mill races, wharves and railway sidings for the purpose of forming a town composed wholly of mills, factories and workshops.

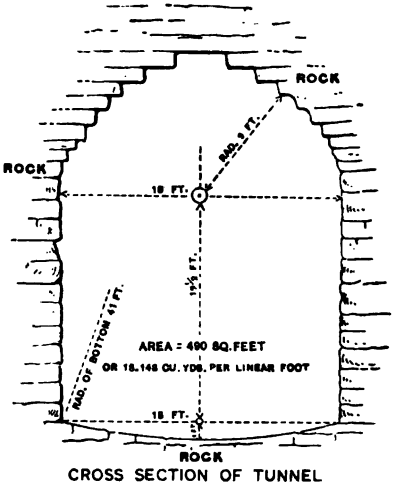
The company has also purchased an adjoining tract of one thousand acres, which has been laid out in streets and lots for homes for workmen employed.

The location of the mill sites and the new manufacturing district is shown upon the map of Niagara Falls and vicinity at pages 12 and 13.

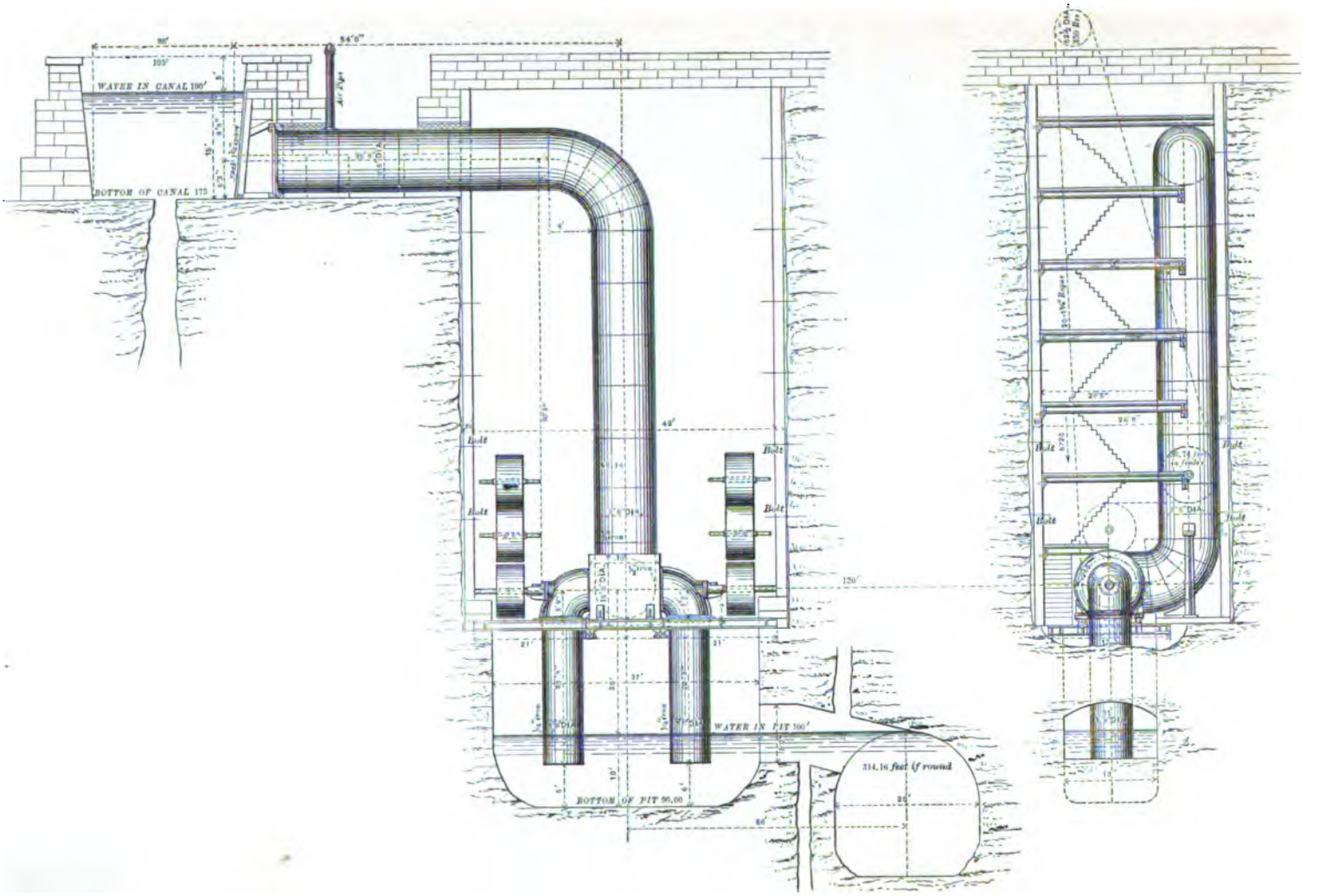
THE TUNNEL.— PLANS OF THE NIAGARA FALLS POWER COMPANY FOR THE UTILIZATION OF THE POWER OF THE FALLS OF NIAGARA.

The association of prominent business men at Niagara Falls, New York, known as The Niagara Falls Power Company, was organized for the further development of the water-power at Niagara, and has, from its charter and the amendatory acts, all the powers and grants necessary for taking water from the Niagara River, passing the water through the raceways and tunnels of the company, and furnishing the power derived from the energy of the water, to the mills and factories to be located upon the adjacent lands.

For this purpose, from the water level below the Falls, a subterranean tunnel will be constructed of horse-shoe shape, having capacity equal to a circle twenty-five feet in diameter, extending through the solid rock, to the upper river at a point about one mile above the Falls. From this point the tunnel continues parallel with the shore of the river one and one-half miles, at an average depth of 160 feet below ground, and about 400 feet distant from the navigable waters of the river, with which it is connected by means of surface conduits or canals, through which the water from the river enters and is drawn through the shafts and wheel-pits into the great tunnel below, which forms an immense tail race for all of the mills, factories and workshops. A cross section view of the



CROSS SECTION OF TUNNEL



PLAN TO DEVELOP 2,000 HORSE-POWER.

tunnel, showing its form is given, on page 21, and on page 20 a view showing the manner in which the tunnel will be constructed.

The plans adopted will develop 120,000 horse-power. For convenience of construction, the work will be divided into three sections.

The plan of the entire work is shown by illustration on pages 12 and 13, and that of the first section, upon which work is now begun, on page 17.

The raceways, canals, conduits and wheel-pits are cut through the hard and durable "Niagara" limestone, which gives to all absolute permanency, and the fact of the rock being but a few feet (at no point over ten feet) below the surface, enables the buildings and heavy machinery to be placed upon solid foundations.

The water falls upon turbine wheels, which will be put in by the company in a number of the pits, and the power developed thereby will be brought to the surface, from which point it will be delivered to the mills or factories at that point, or transmitted by cable, pneumatic tube, or electricity to adjacent lands as the customers may desire.

The company will also lease power to customers wishing to excavate their own wheel-pits and put in their own water wheels and connections. An illustration showing the manner in which the wheel-pits will be constructed, the wheels set, and the power brought to the surface is given at page 22.

The first cost of the power produced will be so small, that the rates of rental will be much below those of any other power in the country.

The company has purchased about 300 acres of land, beginning a short distance above the upper boundary line of the New York State Reservation at Niagara, and extending along the shore of the river for two miles, at an average depth of 600 feet back from the river, assuring to the company this entire length of river frontage with its facilities for dockage, and furnishing ample room for mill sites of any size desired. The land is shown on the map at pages 12 and 13.

There have also been purchased over 1,000 acres of land adjacent to that already described, which will be used for mill sites, and more particularly for homes for operatives, and will be offered at very reasonable rates, enabling the manufacturer to supply his employees with good and healthful homes for a very moderate sum.

All the lands will be furnished with a steady supply of pure water for all purposes, will be lighted in the most approved manner, have good streets, and be connected with the business portion of Niagara Falls and all adjacent points by means of the best street railway accommodations.

These lands are shown on the maps at pages 12 and 13.

A thorough and complete system of side tracks will be run to all the lands and mill sites, connecting them with the following great trunk lines of railroad: New York Central & Hudson River; New York, Lake Erie & Western; Delaware, Lackawanna & Western; West Shore; Grand Trunk; Rome, Watertown & Ogdensburgh; Lehigh Valley; Western New York & Pennsylvania; Buffalo, Rochester & Pittsburg; Michigan Central Railroad; Lake Shore & Michigan Southern; and having also the water connections of the Niagara River, the great lakes and the Erie Canal.

The map of the railroads at Niagara Falls and vicinity at page 29, shows the desirability of this location from a shipper's point of view.

For the construction of this great work a contract has been made, and under it work has been commenced by the Cataract Construction Company upon the building of the tunnel, the shafts, raceways, and works to complete the undertaking.

THE CATARACT CONSTRUCTION COMPANY.

It is fortunate for the manufacturing interests of the country that this great enterprise is in the hands of men who have abundant capital to develop it to the fullest extent.

Among the stockholders of the Construction Company are: J. Pierpont Morgan, George S. Bowdoin and C. H. Coster of the banking house of Drexel, Morgan & Co.; Charles Lanier, Edward D. Adams and Edward Winslow of the firm of Winslow, Lanier & Co.; Brown Brothers & Co.; William K. Vanderbilt, D. O. Mills, H. McK. Twombly, Morris K. Jesup, August Belmont & Co., Isaac N. Seligman, Kuhn, Loeb & Co., A. J. Forbes-Leith, Charles F. Clark, Edward A. Wickes, Francis Lynde Stetson, F. W. Whitridge, all of New York City; George M. Porter, of Buffalo, and others.

The officers of the Company are: Edward D. Adams, president; Francis Lynde Stetson and Edward A. Wickes, vice-presidents; William B. Rankine, secretary, and George H. Kent, treasurer. The directors are Messrs. Mills, Lanier, Bowdoin, Clark, Whitridge, Forbes-Leith, and the President, Vice-Presidents and Secretary.

The engineers are Albert H. Porter, resident engineer; John Bogart, (N. Y. State Engineer) and Coleman Sellers, consulting engineers; and Clemens Herschel, hydraulic engineer.

These names vouch for the character and extent of the work to be performed.

In accordance with the contract, the first section of the work will be completed and the power ready for use by the first of January, 1892.

It will be economy for manufacturers who intend to locate at Niagara Falls and use the power to make contracts at an early date and begin the work of constructing their factories and mills, so as to be in readiness to use the power immediately upon its development.

An examination of the maps and illustrations of Niagara Falls, the adjacent country, the railroad connections and waterways with the plans of the Niagara Falls Power Company for the development of the water-power, will convince manufacturers and business men generally of the great resources and advantages of Niagara Falls for all kinds of manufacturing and milling industries.

TO MANUFACTURERS.

Success in manufacturing, which means remunerative returns upon the capital invested, is now based upon three important factors:

First—Location, with reference to the economical procurement of raw material.

Second—Cheap and continuous power.

Third—Proper transportation facilities for distribution of the manufactured articles at a cost which shall place the manufacturer in line with the most favored localities occupied by his competitors.

These conditions exist to the fullest extent at Niagara Falls. The power is particularly good. The great lakes form a chain of reservoirs

THE FALLS OF NIAGARA FROM CANADA SIDE.

which cannot cease to supply a continuous power, steady, ample in volume, and not excelled by any upon this continent. Wheel-pits, conduits and connections are cut through the solid rock, insuring stability, permanency and a minimum cost for maintenance. Those familiar with water-power will fully appreciate the great advantages which come to the manufacturer, when he can rely upon ample power, with enduring foundations for buildings and machinery. Freed from all apprehension of drouth or freshets, which might affect his power, with no dams to break or reservoirs to watch, the manufacturer can expend his utmost energy pushing and placing his product, knowing that his motors will always respond to the needs of his business.

The Great Trunk Lines centering at Niagara Falls, together with lake and Erie Canal transportation, afford means for obtaining the raw material at the lowest rates. The grain producing States of Ohio, Indiana, Illinois, Minnesota, Dakota, Michigan, Iowa, and Missouri border upon the chain of lakes or are pierced by the trunk lines of railway which pass the doors of the mills at Niagara Falls and bring supplies of wheat and other cereals for milling uses. More than two-thirds of all grain exported from the United States is shipped eastward by the lake route, canal, or over the great railway lines, extending from Chicago to New York — passing over the Niagara River. Where is there a better location for milling than Niagara Falls?

The forests of Michigan and Wisconsin yield abundant supplies of lumber, which is brought down the lakes and into the Niagara River for distribution eastward.

This trade has assumed large proportions during the past few years, and exceeds that of any other locality in this country.

The ores of the Lake Superior region, which are practically inexhaustible, may be brought to Niagara Falls for smelting and refining. Vessels laden at the mines can pass down the lakes and the Niagara River and unload their cargoes upon the docks of the Power Company, there to undergo the processes which precede their entrance into articles of commerce.

Niagara Falls is about midway between New York and Chicago. Railroad rates east and west are based practically upon one-half of the through

tariff. Local rates over all the lines centering at Niagara Falls are reasonable, and are kept so through the competition arising from the presence of the various trunk lines running east and west. As a distributing point Niagara Falls is highly favored and must improve with increased shipments.

Among the industries which may be profitably located at Niagara Falls are: Flour mills, paper mills, pulp mills, sulphite mills, wood and metal working industries, manufacture of cotton and woolen fabrics, manufacture of machinery specialties, manufacture of electrical machinery and supplies, wire works, paper-box factories, rope factories, foundries, smelting and blast furnaces, treatment of metals by electricity, storage and shipment of electricity.

To summarize the advantages of Niagara Falls as a manufacturing point, it has cheap and enduring power, unexcelled transportation facilities, both rail and water, access to all the great States producing raw material, numerous competing lines of railway, lake and Erie Canal for distribution of manufactured products, cheap lands for homes for operatives, excellent schools, low rate of taxation, and ample banking facilities.

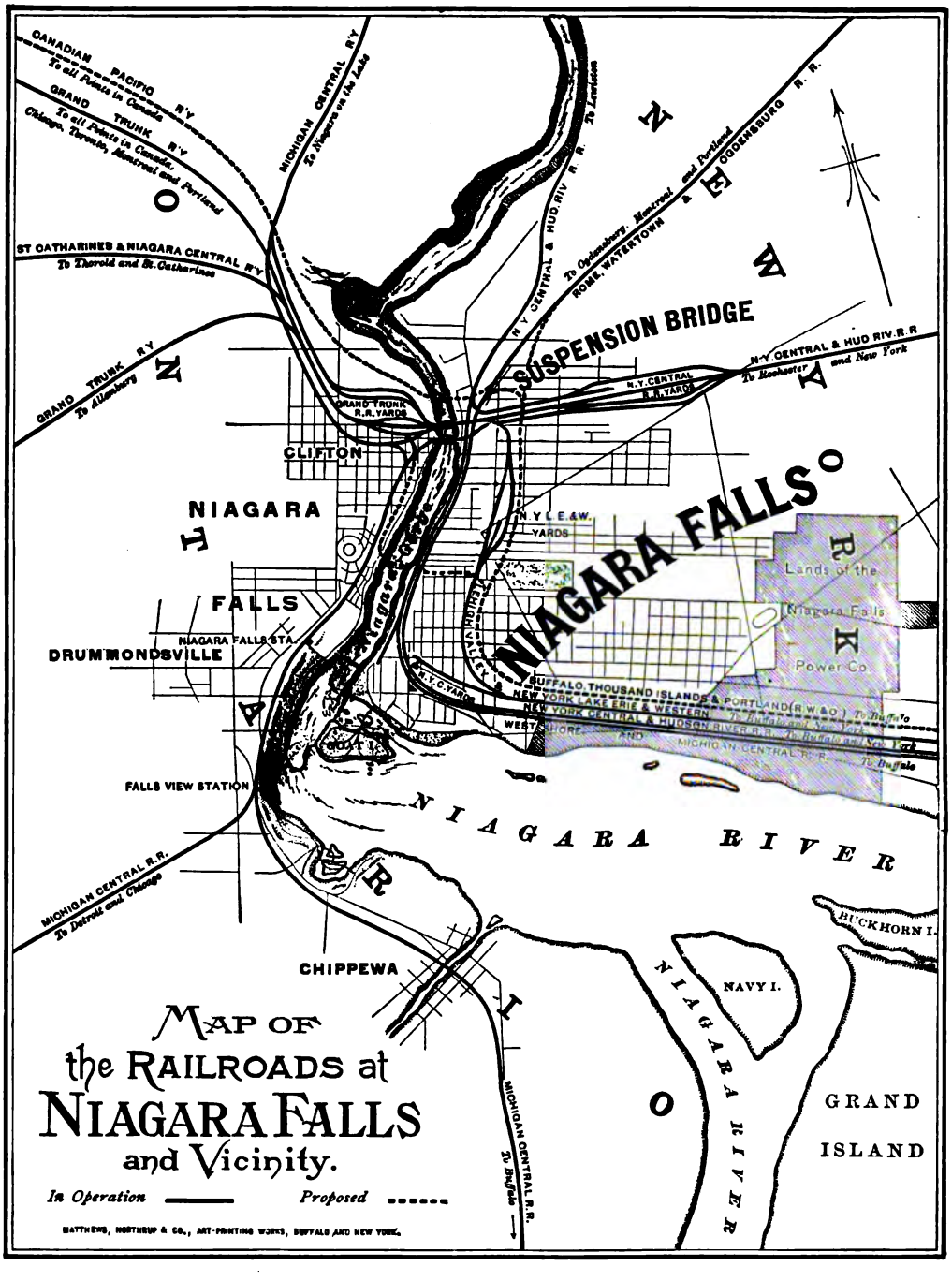
SHIPPING AND RAILWAY FACILITIES.

Niagara Falls is undoubtedly destined in the near future to be classed as one of the great railway centers. Seven great trunk lines are already in active operation making connections with promptness and dispatch.

The tracks of the New York Central, West Shore, Erie, Grand Trunk, Rome, Watertown & Ogdensburg, Lehigh Valley and Michigan Central railways adjoin and run parallel with the tunnel lands and the entire plot of mill sites of the Niagara Falls Power Company, with provision for sidings to each mill site.

A proper consideration of these advantages will convince the manufacturer that the facilities afforded for transportation have no equal in this country.

To the seaboard and all points east and west, freight rates are now made by the railroads from Niagara Falls upon the basis of about one-half the through competitive rates from Chicago and other western points to the east.



MAP OF the RAILROADS at NIAGARA FALLS and Vicinity.

In Operation ——— *Proposed* - - - - -

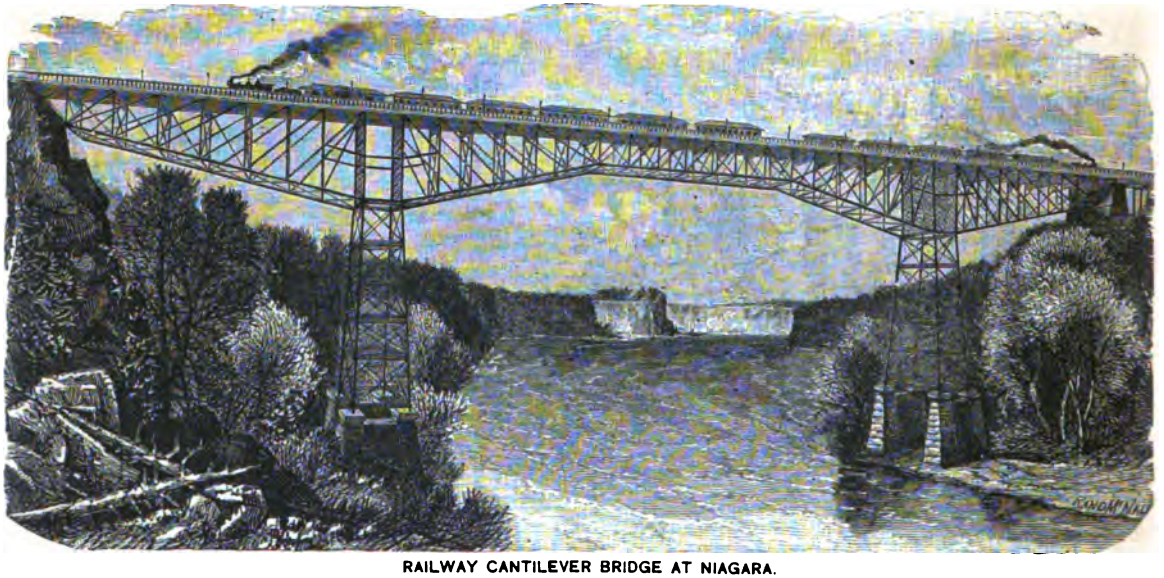
MATTHEWS, NORTHRUP & CO., ART-PRINTING WORKS, BUFFALO AND NEW YORK.

This places the manufacturer in a position to compete successfully with manufacturers of any locality in the United States.

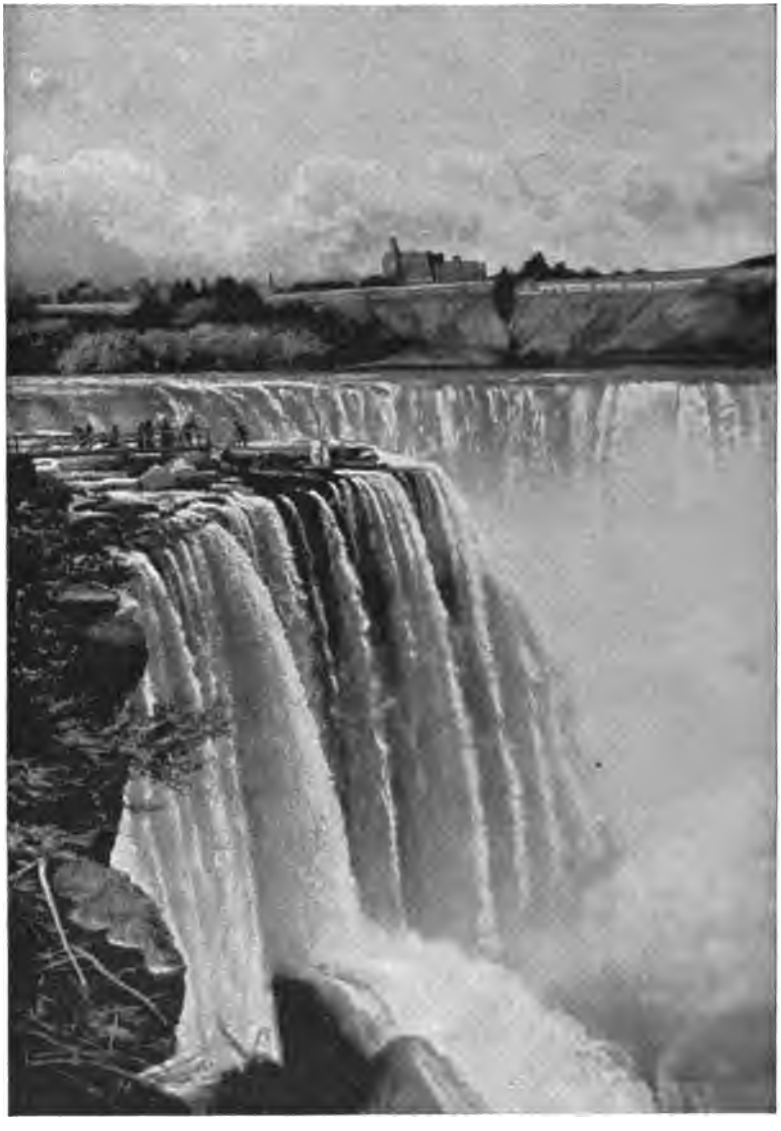
The mill sites are located upon the Niagara River at a point above the Falls, navigable for vessels. Canal boats can also receive and discharge freight at the mills, as the Niagara River connects with the Erie Canal at Tonawanda, eleven miles distant. Direct shipment of freight destined for Lake Ontario ports can be made with the Rome, Watertown & Ogdensburg Railroad, New York Central & Hudson River Railroad, and Niagara Navigation Company.

Surveys have been made by other railway corporations with the intention of extending their systems to Niagara Falls and vicinity. The numerous freight yards are at the present time very extensive, acres of ground being covered with net-works of tracks.

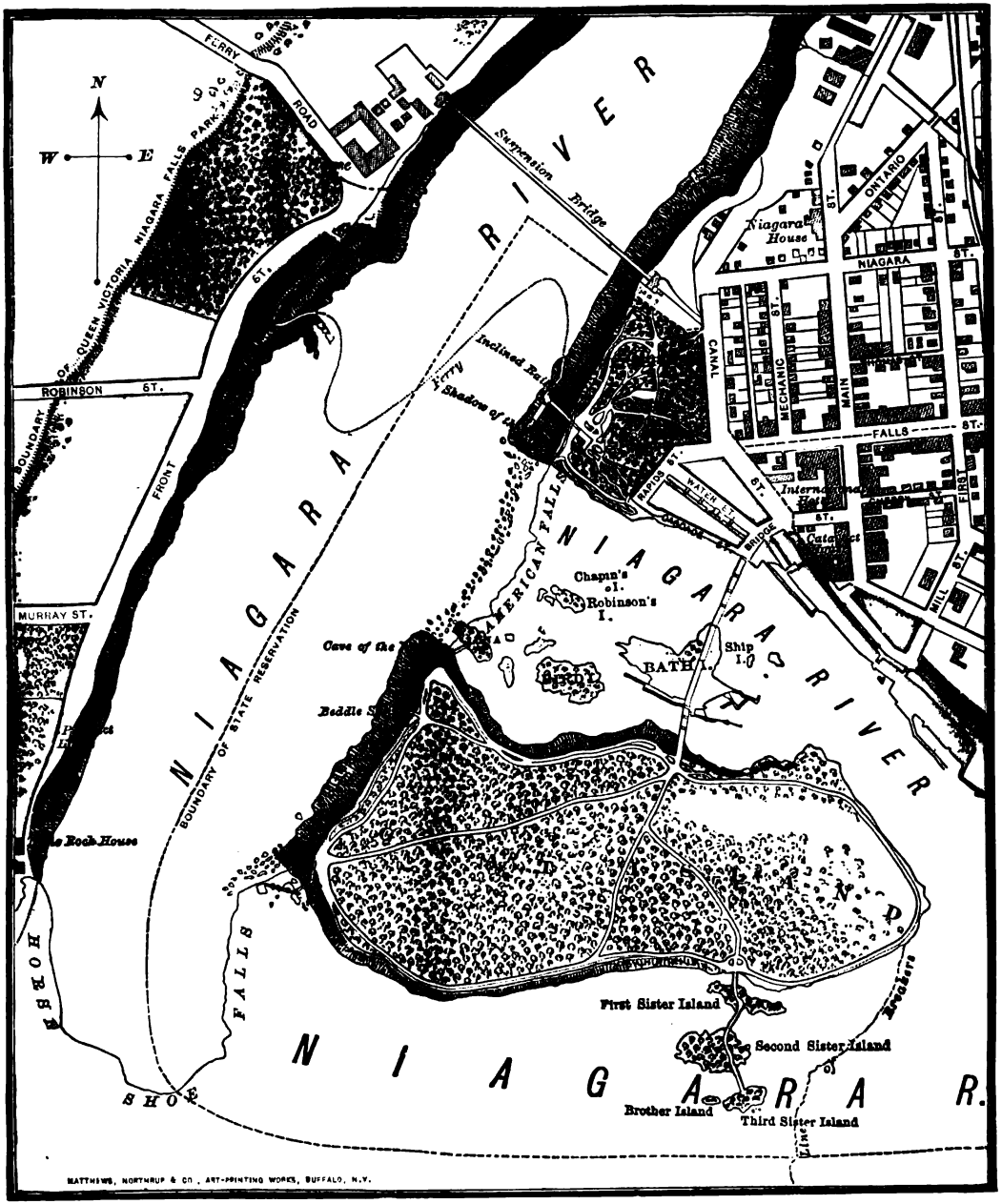
Niagara Falls, owing to its close proximity to the Dominion of Canada, offers unusual advantages as a distributing point. Hundreds of thousands of tons of freight are brought to Niagara daily to be shipped to all parts of the world. The great Cantilever and the railway Suspension bridges present daily scenes of constant activity in the departments of the railroad, express, freight



RAILWAY CANTILEVER BRIDGE AT NIAGARA.



HORSE-SHOE FALLS FROM GOAT ISLAND.



MAP OF THE FALLS OF NIAGARA.

and telegraph interests. There is scarcely a moment all through the day during which cars are not crossing and re-crossing the bridges. With the development of the great Tunnel it is safe to predict that every railway of importance in this State will have tracks, yards and depots at Niagara Falls and vicinity.

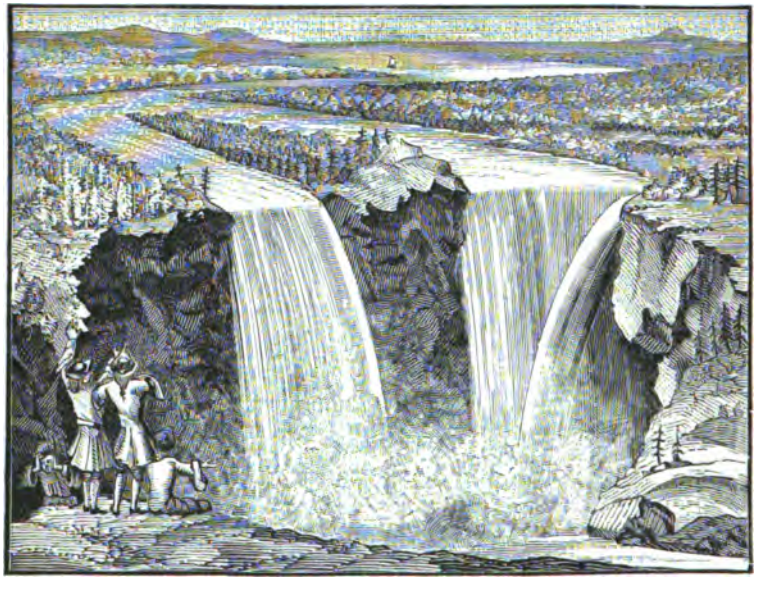
Equal advantages are offered for the commerce of the lakes by means of the Niagara River. An appropriation has been made by the United States government for the further improvement of the Niagara River above the Falls which will materially hasten the actual existence of the cheapest as well as the most available water-way in the world. Upon the completion of this channel, vessels can come down the Niagara River with their loads of lumber, grain, coal, ore, etc., to be unloaded upon the wharves and docks of mills and factories. They will have a continuous passage from the cities of the west and the great chain of lakes direct to Niagara Falls. Grain will be unloaded at the mills and manufactured in transit. Wheat can be shipped from any field in America without delay of transfers, manufactured into flour and taken directly to its destination. As a railway and shipping point, Niagara Falls is destined to be unexcelled. The value of imports of merchandise into the Niagara District from Quebec, Ontario, Manitoba and northwest territory alone was $4,455,772 for the fiscal year ending June 30, 1889. This is the largest valuation, with two exceptions, shown by any of the northern border and lake ports. In the in-transit and trans-shipment trade where extraordinary dispatch is required, Niagara ranks sixth as compared with the twenty-four principal customs districts. There are but three lake ports that show as large an amount of American and foreign tonnage entered and cleared in 1889, as the Niagara District.

HOMES AND INVESTMENTS AT NIAGARA FALLS.

It is not necessary to speak of Niagara as a pleasure resort, its prominence in that respect is well known. From the utilization of the water-power, Niagara Falls now offers many advantages to persons desiring homes, capital seeking investment, and labor looking for employment.

Having in the town a population of over ten thousand, the Holly system of water-works, unsurpassed facilities for sewerage, gas and electric

light, telephone and telegraph connections, free postal delivery, three Banks, three newspapers, two union schools, primary schools, and many private and parochial schools, twelve churches, comprising all the principal denominations; an opera house, and many celebrated hotels, indispensable to a great pleasure resort; street railroads, the trunk lines of railway, and the great manufacturing establishments before mentioned, there is probably no place in the country more desirable for a home or offering greater inducements for investment of capital in lands and manufacturing than Niagara Falls.



FAC-SIMILE OF THE FIRST ENGRAVING OF THE FALLS OF NIAGARA.
From Hennepin's "New Discovery" published in 1697.

Situated on high ground on the shore of the Niagara River, twenty-one miles from Lake Erie, and fourteen miles from Lake Ontario, the atmosphere is invigorating and healthful. The State of New York, in the year 1885, purchased Goat Island and the smaller islands at the brink of the Falls, Prospect Park, and the river shore along the rapids, and opened them free forever to the public as the State Reservation at Niagara. The grounds about the Falls are now cared for and maintained at the expense of the State, and are visited by five hundred thousand people every year.

FALLS OF NIAGARA FROM PROSPECT POINT.

The establishment of the State reservation has increased the attractions of Niagara Falls and made it one of the most pleasant places of residence in the world.

THE STATE RESERVATION AT NIAGARA.

The Falls of Niagara, spelled "Ongiara," were indicated on Champlain's map in 1632, and on Sanson's map of Canada published in Paris in 1657.

On the sixth day of December, 1678, a vessel fitted out by the French explorer, La Salle, at Frontenac, now Kingston, Ontario, entered the mouth of the Niagara River from Lake Ontario, and the history of the Niagara region may be said to date from that event.

The crew of the vessel were sixteen in number, commanded by the Sieur de la Motte, and included Henri de Tonty, the assistant of La Salle in his wonderful explorations, and Father Louis Hennepin, whose name has become familiarly connected with Niagara, as that of the first white man who visited and described the great cataract.

Great changes have taken place in the contour of the Falls since Hennepin's view at page 34 was taken.

The Lateral Fall, shown in the illustration, has entirely disappeared. Table Rock probably formed the bed of the Lateral Fall. Large portions of Table Rock fell in 1818, 1828, 1850, and 1886. The fragments are visible, scattered upon the slope on the Canadian side.

Considering the recession of the Falls and other changes which have occurred during the two hundred years that have elapsed since Hennepin first beheld them, the illustration is, in some respects, quite an accurate outline of the Falls and vicinity to-day, as shown by the illustration at page 35.

The French built Fort Niagara at the mouth of the river, and established trading posts at Lewiston, seven miles below the Falls; at Fort du Portage, at the head of the rapids just above the Falls, and held dominion over the Niagara region until their surrender of Fort Niagara to Sir William Johnson, Commander of the British Forces in 1759.

After the close of the Revolutionary war, by the treaty of 1783, the great lakes and the Niagara River became the boundary between the United

States and Canada, but Fort Niagara was not evacuated by the British until 1796.

In the year 1805 the State of New York offered the lands along the Niagara River for sale, and large tracts were purchased by Augustus Porter and Peter B. Porter. The first settlement in the neighborhood of the Falls was destroyed by the British and Indians during the war of 1812.

In 1816 Augustus Porter purchased Goat Island and the adjacent Islands from the State, and erected the first bridge from the main shore to a point near the head of the island.

For 70 years Augustus Porter, Peter B. Porter, and their descendants guarded Goat Island from encroachment, saved the primeval forest upon it from the plow and the axe, preserving that charming spot to this day substantially as nature left it. For this service they deserve to be held in grateful memory by every lover of the beauty of the natural scenery of Niagara.

RAILWAY SUSPENSION BRIDGE AT NIAGARA.

After the construction of the raceways along the rapids, Niagara Falls became a manufacturing place as well as a great pleasure resort.

The railroads were built at Niagara in 1836. The International Railway Suspension Bridge, one of the greatest achievements of engineering science, was built in 1855, and Niagara Falls at once became a great railroad center, and the channel of communication between the lakes and the ocean. The great Cantilever Railway Bridge was built in 1883. No other bridge ever having been completed upon the same principle it attracted the attention of the scientific world by its beauty, strength and safety. It is an object of curiosity to visitors from all parts of the world, and divides with the railway suspension bridge the traffic of the great railway lines centering at Niagara.

The upper or new suspension bridge was built in 1869, and constituted at the time the longest single span in the world.

The water-power upon the Hydraulic Canal was first utilized in 1875, and was found to be superior to the water-power on the raceways and Bath Island, and had the further advantage of abundant railroad facilities, and was located so far from the cataract as not in any manner to deface the natural scenery of the Falls.

The disfigurement of the natural scenery of the cataract by encroachments for manufacturing purposes had already become a matter of discussion in the public press.

In the year 1869 the necessity of taking some measure to preserve the beauty of the natural scenery from destruction was discussed by Frederic S. Church, the artist, Frederick Law Olmsted, Hon. William Dorsheimer, Richardson, the architect, and many others, but no action was taken until several years afterward, when, at the suggestion of Mr. Church, Mr. William H. Hurlburt communicated with the Earl of Dufferin, then Governor-General of Canada, in relation to the establishment of an International Park on both sides of the Falls.

The first practical step taken in the matter of the establishment of the State Reservation at Niagara was embodied in a message from Governor Robinson to the Legislature of the State of New York, Jan. 9, 1879, in which he

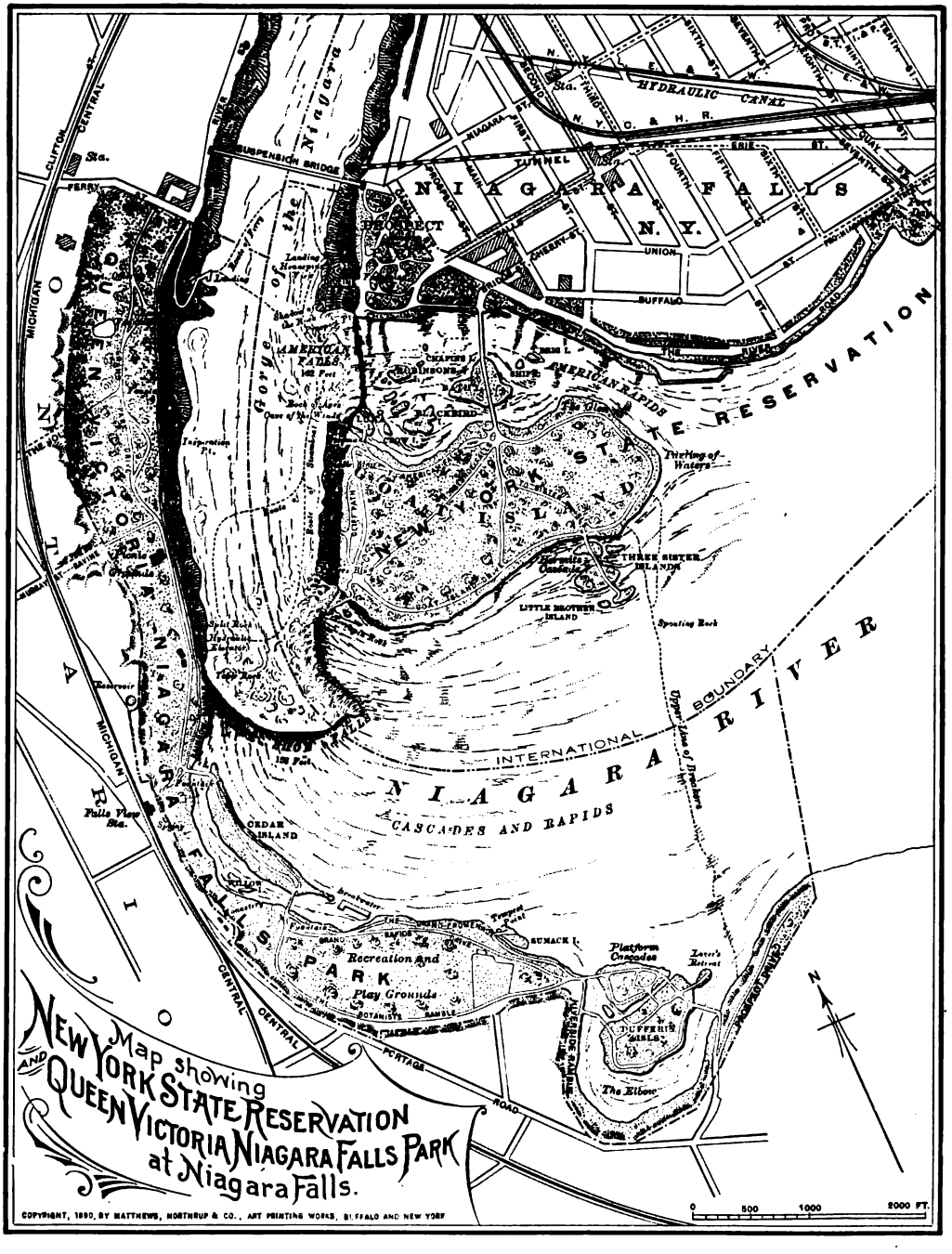
THE WHIRLPOOL RAPIDS.

advocated the desirability of the project, and referred to a conversation with Lord Dufferin, who suggested the propriety of steps being taken by the State of New York and the Dominion of Canada to preserve the natural scenery of Niagara from destruction. At the suggestion of Governor Robinson the matter was referred to the Commissioners of the State Survey, who recommended the extinguishment of the private title in so much land as should be regarded as absolutely necessary for the purpose, and that the State should, by purchase, acquire a title to such land, and hold it in trust for her people forever.

Bills to carry out this recommendation were introduced in the Legislatures of the State of New York of 1880 and 1881, but failed to secure passage. No legislative action was taken in 1882. On the 30th of January, 1883, a bill was introduced entitled "An Act to authorize the selection, location and appropriation of certain lands in the Village of Niagara Falls for a State Reservation, and to preserve the scenery of the Falls of Niagara." The bill was passed, and on the 30th of April, 1883, received the approval of Governor Cleveland, and became a law. William Dorsheimer, Andrew H. Green, J. Hampden Robb, Sherman S. Rogers, and Martin B. Anderson were appointed commissioners to select the necessary lands, and the Reservation was located by the selection of some 107 acres in the immediate vicinity of the Falls, the property taken embracing all of Goat Island and the adjacent islands, Prospect Park, from the brink of the cataract to the new Suspension Bridge, also a strip of land running from Prospect Park to Port Day, bordering the Niagara River and containing the buildings which marred the beauty of the natural scenery. Mathew Hale, Luther R. Marsh, and Pascal P. Pratt were chosen to act as appraisers of the property, and made awards amounting to $1,433,429.50.

The Legislature of 1885 passed an Act making the necessary appropriation, and on the 30th of April of that year Governor Hill gave his approval to the enactment, which gave Niagara to the people of the State and the world for all time to come. The State Reservation at Niagara was opened to the public with imposing ceremonies July 15, 1885.

Since the establishment of the Reservation the buildings upon Bath Island and on the strip of land from Prospect Park to Port Day have been



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removed, leaving the view of the rapids and Islands and the surroundings of the great cataract unobstructed. A plan for the restoration of the natural scenery has been prepared, and "as soon as the hand of nature, nowhere more powerful than in this favored place, can do the work these banks will be covered with trees, these slopes made verdant, and the cataract once more clothed with the charms that nature gave it."

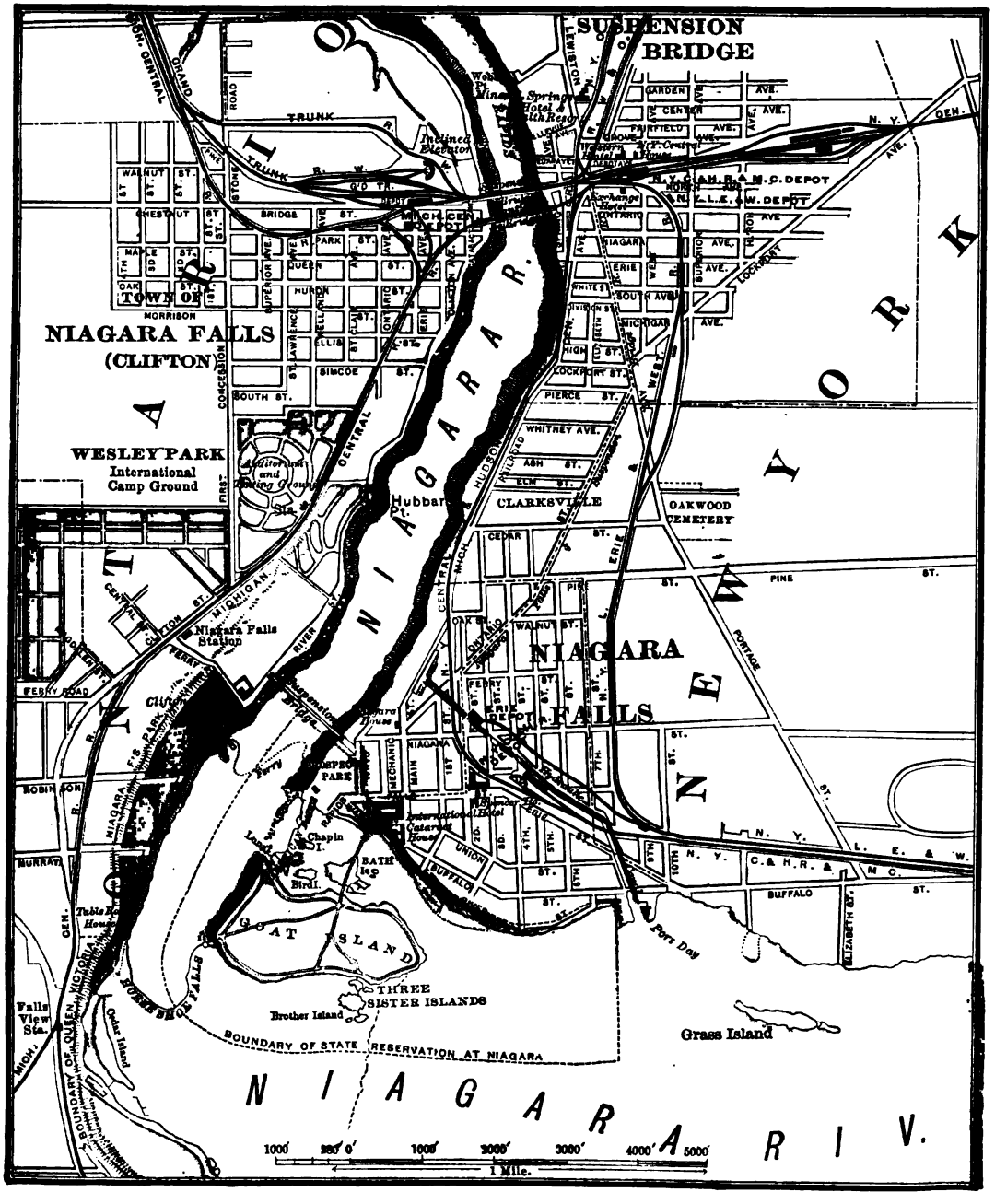
HISTORIC POINTS.

From the State Reservation many historical points on the Niagara frontier are visible. At the mouth of Cayuga Creek, five miles above the Falls on the American side, La Salle, in 1679, built and launched the "Griffin," the first vessel that sailed the upper lakes. Further down, at the "Old French Landing" within the Reservation, La Salle and Father Hennepin and their followers embarked after the portage of their canoe from Lewiston. The landing was used by the early French and British traders, and before their coming, by the Indians of the Neutral Nation and their successors, the Senecas. About a mile above the Falls is the site of the French Fort du Portage, destroyed by Joncaire before his retreat in 1759. The old stone chimney of the French barracks is yet standing, and the outlines of Fort Schlosser built by the British in 1761 are visible. December 29, 1837, during the "Patriot Rebellion" the steamer Caroline was seized at Schlosser landing, about two miles above the Falls, towed out into the river and allowed to drift with the current over the Falls.

On the opposite shore of the river is the Canadian Village of Chippewa, the site of the battle of Chippewa, July 5, 1814. On the height, on the Canada side west of the Horse-Shoe Fall, the battle of Lundy's Lane took place July 25, 1814, and further down the river the lofty shaft of Brock's Monument marks the battle ground of Queenston Heights, October 13, 1813.

THE QUEEN VICTORIA NIAGARA FALLS PARK.

Following the example of the State of New York, in the year 1885 the Legislature of the Province of Ontario, Canada, passed an Act providing for



MAP OF NIAGARA FALLS AND VICINITY.

the appointment of the Commissioners of the Niagara Falls Park. C. S. Gzowski, J. W. Langmuir, and J. G. Macdonald were appointed Commissioners. A strip of land was selected, 154 acres in area, extending from a point below the Falls to the head of the rapids, a distance of about two miles. Awards were made to the amount of $436,813.24. The Queen Victoria Niagara Falls Park on the Canadian side was opened to the public May 24, 1888.

Undesirable buildings upon the cliff have been removed, walks and drives provided, and the Falls upon the Canadian side are now environed by one of the most beautiful natural parks on the continent.

The location and extent of the State Reservation at Niagara and the Queen Victoria Niagara Falls Park are shown upon the map of the State Reservation at page 41.

What nature has done for Niagara has thus been wisely supplemented by the action of two great nations. When we consider the advantages for free enjoyment of the grandeur and beauty of the scenery of the great cataract, and the opportunities for material development and prosperity afforded by the utilization of the vast water-power at Niagara, it must be conceded that it would be difficult to find a more favored locality. Above the State Reservation the shore of the river is dotted with villages and pleasant homes as far as Tonawanda and Buffalo. In the river, Navy, Buckhorn, and Grand Islands are convenient resorts for pleasure or private residence. Below the State Reservation are the Whirlpool Rapids, the Whirlpool itself, and the wonderful gorge to Lewiston, where the beautiful lower Niagara River, bordered on either side by suburban residences, flows into Lake Ontario.

The close proximity of Buffalo, Tonawanda and Niagara Falls has already united them by many local ties, and identified them in a variety of business enterprises. The prosperous and rapidly extending communities of Niagara Falls and Suspension Bridge are practically one place, and steps have been taken for uniting them under one municipal government. It is manifest to the student of this historic and beautiful locality, that by reason of the establishment of the State Reservation upon the borders of the great cataract, the utilization of the vast water-power along the upper Niagara River by means of the hydraulic tunnel, and the concentration of

THE WHIRLPOOL.

the great railway lines at Niagara, the growth of Niagara Falls as a pleasure resort and a manufacturing place is sure to be rapid and constant until it becomes one of the largest and fairest cities of our country.

THE ROCK OF AGES.

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